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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LUDOVIC POUPINET,
BERANGERE HYOT, and MARIE-FRANCOISE ARMAND

Appeal 2009-008254
Application 10/535,338
Technology Center 1700

Decided: October 15, 2009

Before EDWARD C. KIMLIN, ADRIENE LEPIANE HANLON, and
MARK NAGUMO, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*.

DECISION ON APPEAL

A. Introduction¹

Ludovic Poupinet, Berangere Hyot, and Marie-Francoise Armand (“Poupinet”) timely appeal under 35 U.S.C. § 134(a) from the final rejection² of claims 12-16 and 20-22, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6. We AFFIRM.

The subject matter on appeal relates to an optical recording medium having an active layer consisting of a zinc-tellurium alloy that consists, on an atomic basis, of 60% to 70% zinc and 30 to 40% tellurium. Thin layers of the material, preferably 15 to 50 nm thick, are said to be readily deformed, bubbled, or pitted by a laser at storage densities corresponding to DVD [digital versatile disk] format specifications.

Representative Claim 12 is reproduced from the Claims Appendix to the Principal Brief on Appeal:

12. Optical recording medium comprising an active layer made of inorganic material, presenting a front face for receiving an optical radiation during writing operations, and a rear face
wherein the inorganic material is tellurium and zinc alloy consisting of an atomic percentage of

¹ Application 10/535,338, *Optical Recording Medium Based on a Tellurium and Zinc Alloy*, filed 19 October 2005, as the national stage under 35 U.S.C. § 371 of PCT/FR03/03547, filed 2 December 2003. The benefit under 35 U.S.C. § 119(a) is claimed to an application filed in France on 2 December 2003. The specification is referred to as the “338 Specification,” and is cited as “Spec.” The real parties in interest are listed as the Commissariat à L’Energie Atomique, and MPO Int’l. (Appeal Brief, filed 9 December 2008 (“Br.”), 1.)

² Office action mailed 22 July 2008 (“Final Rejection”; cited as “FR”).

between 60% and 70% of zinc and
between 30% and 40% of tellurium.

(Br., Claims App. A-1; indentation and paragraphing added.)

The Examiner has maintained the following grounds of rejection:³

- A. Claims 12-14 and 20 stand rejected⁴ under 35 U.S.C. § 103(a) in view of Takahashi.⁵
- B. Claims 15 and 16 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Takahashi and either Stevens⁶ or Holster.⁷
- C. Claims 20 and 21 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Takahashi and Tamura.⁸

Poupinet contends the Examiner failed to establish that the general teachings of Takahashi regarding metal containing heat-mode recording layers would have taught or suggested the zinc-tellurium alloy recited in claim 12. More particularly, Poupinet argues that binary alloys, let alone Zn:Te alloys having the claimed ratio, are not suggested by Takahashi's

³ Examiner's Answer mailed 20 February 2009. ("Ans.")

⁴ Both the Brief (Br. 8) and the Examiner's Answer (Ans. 3-4) erroneously include claims 17-19 in the rejection. However, claims 17-19 were canceled by the amendment filed after the final rejection on 21 November 2008 and entered by the Examiner in the Office Action mailed 3 December 2008.

⁵ Yonosuke Takahashi et al., *Optical Information Recording Medium*, U.S. Patent 4,405,706 (1983).

⁶ Paul Mark Stevens, U.S. Patent 6,177,168 B1 (2001).

⁷ Peter L. Holster and Johannes M. Wittkämper, U.S. Patent 4,450,553 (1984).

⁸ Miki Tamura and Tsuyoshi Santoh, U.S. Patent 5,354,590 (1994).

general list of metals or by the preferred list of seven metals that includes Zn and Te. The teaching that such metals can be used “individually or in combination” is not sufficient, in Poupinet’s view, to establish a case of *prima facie* obviousness. Moreover, Poupinet argues, Takahashi does not provide any teaching that the amount of Zn relative to Te is a result-effective variable. Thus, according to Poupinet, there is no basis in the record to argue that the range of ratios recited in the claims would have been obvious as a result of routine optimization. (Br. 12.)

The Examiner maintains that the disclosure by Takahashi of Zn and Te as “preferred metals” together with the teaching that the metals may be used “individually or in combination” suffices to describe bimetallic alloys. (Ans. 8.) Moreover, according to the Examiner, the 127 possible combinations of metals is “not at all a ‘large number of possible combinations.’” (*Id.* at 10.) The Examiner concludes that there would have been a reasonable expectation of success in making a heat recording layer within the scope of claim 12 based on the teachings of Takahashi. (*Id.*) As for result-effective optimization, the Examiner argues that promoting sensitivity of the recording layer and “effectuating the largest signal-to-noise of recorded marks” (*id.*) would have provided the necessary guidance to one skilled in the art.

B. Findings of Fact

Findings of fact throughout this Opinion are supported by a preponderance of the evidence of record.

1. Takahashi describes an optical information recording medium that is said to have improved adhesion between the heat mode recording layer and a plastic substrate comprising an acrylic resin. (Takahashi, col. 1, ll. 5-12 and col. 2, ll. 32-35.)

2. In Takahashi's words:

[t]he metals used for the heat mode recording layer in this invention include Mg, Sc, Y, Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Re, Fe, Co, Ni, Ru, Rh, Pd, Ir, Pt, Cu, Ag, Au, Zn, Cd, Al, Ga, In, Si, Ge, Sn, As, Sb, Bi, Se, and Te, which are used individually or in combination.

(Takahashi, col. 3, ll. 52-56.)

3. According to Takahashi, preferable among these metals are "Mg, Zn, Al, In, Sn, Bi, and Te because of their low melting poin[t]." (Takahashi, col. 3, ll. 57-58.)

4. Takahashi teaches further that the metal for the recording layer "may be incorporated with a substance that promotes the sensitivity or thermal deformation." (Takahashi, col. 4, ll. 1-3.)

5. Such substances are said to include oxides such as PbO, WO₃, TiO₂, etc.; chalcogenide substances including at least one of Ge, In, Sn, Cu, Ag, Fe, Bi, Al, Si, Zn, and V, and a chalcogen selected from S, Se, and Te; and certain metal halides, metal sulfides, and metal oxides. (Takahashi, col.4, ll. 6-19.)

6. Takahashi teaches that such compounds are incorporated into the metal in an amount of 10 to 70 vol%. (Takahashi, col. 4, ll. 20-22.)
7. In the Example, Takahashi forms a recording layer by codepositing In [indium] and GeS [germanium sulfide] in a 4:3 volume ratio. (Takahashi, col. 5, ll. 28-31.)

C. Discussion

As the Appellant, Poupinet bears the procedural burden of showing harmful error in the Examiner's rejections. *See, e.g., In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of *prima facie* obviousness") (citation and internal quote omitted). Arguments not timely raised have been waived. 37 C.F.R. § 41.37(c)(1)(vii) (2009), second sentence.

A *prima facie* case of obviousness does not require certainty: a suggestion, along with a reasonable expectation of success, suffices. *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991). Thus, in the absence of evidence to the contrary, e.g., in the absence of evidence of unpredictability beyond the capabilities of persons having ordinary skill to overcome without undue experimentation, it is *prima facie* obvious to follow the teachings of a prior art patent to select components from among those components taught by the patent to be useful for certain purposes.

The claimed invention, an optical recording medium, is somewhat unusual in that the critical inorganic recording material is specifically and narrowly recited to be a ZnTe alloy consisting of 60 to 70 atomic percent

zinc and 30 to 40 atomic percent tellurium. The transitional phrase “consisting of” permits no other ingredients in the active layer.

Poupinet argues that considerable picking and choosing among the various possibilities within the general scope of the teachings of Takahashi would have been necessary to arrive at the invention covered by the appealed claims. However, on its face, Takahashi invites the reader to use any combination of seven low-melting metals as a laser-sensitive writing layer of an optical recording medium.

Although Poupinet stresses that there are 127 possible combinations of alloys and single metals arising from the seven-metal short list of Takahashi, Poupinet has not explained why a person having ordinary skill in the art would not have considered all 127 possible combinations to have been equally likely to provide useful optical recording compositions. Put another way, Poupinet has not come forward with any credible facts or scientific reasoning indicating why the ordinary worker in the art would have considered the Takahashi disclosure of 127 possible metal recording layers not to have been enabling. Poupinet has not explained why the ordinary worker would have doubted Takahashi’s teachings, or why undue experimentation would have been required to make and use any of the suggested optical recording layers.

Similarly, Poupinet’s arguments that a person having ordinary skill in the art would not have optimized the ratio of two metals, in particular, Zn and Te, for optimum performance as a memory medium for a given laser system and for a given substrate, are not supported with citations to any credible facts or evidence. Indeed, given the teaching by Takahashi that

both Zn and Te are useful individually and in combination, and the absence of evidence to the contrary, it is hard to imagine that one of ordinary skill would not seek to optimize the relative amount of each in a binary alloy of the two.

Finally, Poupinet has not come forward with credible evidence of unexpected results or other secondary indicia of non-obviousness. We conclude, on the present record, that Poupinet has failed to carry its burden of proving that the Examiner erred harmfully in holding claim 12 obvious in view of Takahashi.⁹

Poupinet has not argued substantively for the separate patentability of the dependent claims, or for the distinct patentability of claims rejected over the additional applied references. The remaining claims thus fall with claim 12.

⁹ We note, as does Poupinet (Br. 11-12), the Examiner's misplaced reliance on the supposed teaching by Takahashi at column 4, lines 1-11, that "zinc and tellurium are known for *promoting* sensitivity in the recording layer" (FR 4; emphasis added). The substances described by Takahashi as promoting "the sensitivity or [sic: of[?]] thermal deformation" include metal oxides, metal chalcogenides, metal halides, and metal sulfides. Although zinc and tellurium are mentioned as potential components for the metal chalcogenide, neither metal is taught *per se* as a "sensitivity or thermal deformation" additive. The Examiner's reliance on this teaching as additional evidence of the obviousness of selecting zinc and tellurium as components of a binary alloy, or as evidence supporting the obviousness of varying the Zn:Te ratio, was thus erroneous. However, because, as explained *supra*, the *prima facie* case does not rely on this erroneous finding, we conclude that the Examiner's error was harmless.

D. Order

We AFFIRM the rejection of claims 12-14 and 17-20 under 35 U.S.C. § 103(a) in view of Takahashi.

We AFFIRM the rejection of claims 15 and 16 under 35 U.S.C. § 103(a) in view of the combined teachings of Takahashi and either Stevens or Holster.

We AFFIRM the rejection of claims 20 and 21 under 35 U.S.C. § 103(a) in view of the combined teachings of Takahashi and Tamura.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

tc

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